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Title : Growth and population parameters of harbour seals from Svalbard

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Abstract : The harbour seals in Svalbard are the northernmost population of this species in the world. The population is comprised of about 1000 individuals that reside mainly along the west coast of Prins Karls Forland at about 78°20'N. This study is part of a research programme designed to explore how this normally temperate species deals with a high Arctic environment. The material presented herein was collected from 367 live-captured animals, that have been aged based on growth layer readings from stained, decalcified incisor sections (except for pups of the year). Age at sexual maturity was assessed based on analyses of sex hormones. Growth curves display significant sexual dimorphism in this population, with asymptotic values for standard length (163.3 ± 6.8 (SE) vs 140.1 ± 2.0 cm) and body mass (104.0 ± 5.0 vs 83.2 ± 2.7 kg) being greater for males. Maximum values for length and mass were 156 cm and 122 kg for males and 147 cm and 111 kg for females. The 111 kg female was pregnant; the heaviest non-pregnant female weighed 101 kg. Fourteen males were heavier than 100 kg. Testosterone levels in males showed an abrupt increase at 6 years of age, while estradiol levels in females increased abruptly from age 4. Reproductive rate of adult females, was 0.93. The annual mortality rate was 28 % for adult seals 7 years of age and older. Longevity of Svalbard harbour seals is very low compared with populations from other areas, despite the fact that these seals are not exposed to terrestrial predation, there is no known mortality due to fisheries and their organochlorine burdens are low. Extreme seasonality and perhaps other harsh environmental conditions at the northern edge of this species' distribution may exert long-term, low-levels of stress that results in the short longevity in this population.